

REMARKS

Claims 1-4, 16-25 are pending in the application. Claims 23-25 were withdrawn from consideration by the Examiner, as being directed to a non-elected invention.

In the Office Action mailed October 7, 2002, the Examiner rejected claims 1, 16, 20 and 21 as being considered unpatentable under 35 U.S.C. 102(b) over Nakamura et al, U.S. Patent No. 5,604,835 (hereinafter "Nakamura"). Claims 2, 4, 17, and 19 were rejected as being considered unpatentable under 35 U.S.C. 103(a) over Nakamura in view of Kenney, U.S. Patent No. 6,311,004. Claims 3, 18, and 22 were rejected as being considered unpatentable under 35 U.S.C. 103(a) over Nakamura and Kenney, and further in view of Lipscomb.

With respect to claim 1, the Examiner stated that Nakamura teaches a narrow trench (or through hole, extends from one side of the substrate to an opposite side of the substrate, see Fig. 11).

Applicant respectfully asserts that the Examiner is either using a non-standard interpretation of "hole" or "through hole", or the Examiner has misinterpreted Nakamura with respect to its Figure 11. Figures 10 and 11 of Nakamura together show a second embodiment. Figure 10 is a cross sectional view. Figure 11 is a plan view, or top view. (See Nakamura, col. 4, lines 21-26). Figure 10 is a cross sectional view taken from the side. It clearly shows that the "trench" does not extend all the way through the substrate, like a "through-hole" would extend. Nakamura's Figure 11 attempts to show that two optical waveguides arranged on both side faces of a trench, such as those shown in cross section on the right side of Figure 9 with reference numeral 32, can be tapered down to form a singular waveguide, whose cross-section looks like Figure 10. Figure 10 only shows the cross section taken at the tapered end of Figure 11.

Although it is unclear what the large unlabeled square in Figure 11 is meant to depict, Nakamura, at most, arguably shows a "trench" made in a substrate that runs through a surface of the substrate from one side to another. It does not show what is generally considered to be a "hole" or "through hole", i.e., a hole that extends through the substrate.

Applicant has amended claim 1 to better show that the "hole" extends through the substrate. Claim 1 has been amended to claim:

1. (Twice Amended) A method of making a photonic via comprising:  
making a hole in a substrate, wherein the hole extends from one side of the substrate **through the substrate** to an opposite side of the substrate;  
depositing a cladding material into the hole, the cladding material substantially lining an interior surface of the hole; and  
depositing an optical core material into the hole.  
(Twice amended Claim 1, emphasis added).

Nowhere within Nakamura, does it disclose **"making a hole in a substrate, wherein the hole extends through the substrate from one side of the substrate to an opposite side of the substrate,"** as claimed in amended claim 1. As previously argued by Applicant, a photonic via extending from one side of the substrate to an opposite side of the substrate allows for a different system architecture than one that has a via that merely extends to devices buried within the substrate, or to devices that are solely on one side of the substrate. For example, a via that extends from one side of a substrate through the substrate to an opposite side of the substrate allows for devices to be mounted on both a top side and a bottom side of the substrate.

Applicant further asserts that claims 2-4, 16-22 are not obvious in view of Nakamura combined with Kenney and/or Lipscomb, as none of the references describe or suggest **"making a hole in a substrate, wherein the hole extends through the**

substrate from one side of the substrate to an opposite side of the substrate," as claimed in claim 1.

Thus, Applicant asserts that claim 1 is allowable under 35 U.S.C. 102(b) over Nakamura and under 35 U.S.C. 103(a) over Nakamura with Kerney and/or Lipscomb. Given that claims 2-4, 16-22 depend from claim 1, Applicant asserts that claims 2-4, 16-22 are also now allowable.

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Very truly yours,

Dated: 1/6/03

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**Version with Markings to show changes made**

- 1           1. (Twice Amended) A method of making a photonic via comprising:  
2               making a hole in a substrate, wherein the hole extends from one side of  
3               the substrate through the substrate to an opposite side of the substrate;  
4               depositing a cladding material into the hole, the cladding material  
5               substantially lining an interior surface of the hole; and  
6               depositing an optical core material into the hole.

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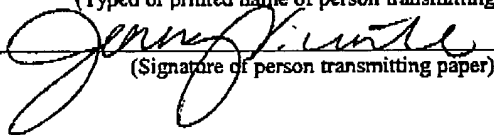
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